

Abstract Submitted
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Electrical and Optical Properties of ITO thin films prepared by Dual Ion Beam Sputtering¹ ALAN WOODALL, WIM GEERTS, ANUP BANDYOPADHYAY, Department of Physics, Texas State University, San Marcos, TX 78666 — Indium Tin Oxide (ITO) thin films find application as transparent electrodes in photodetectors and solar cell devices. We prepared ITO thin films by dual ion beam sputtering from an ITO target on glass microscope slides. During the deposition the substrate was exposed to an atomic oxygen beam. We investigated the influence of the oxygen flow and RF power on the optical and electrical properties of the thin films. The substrates were cleaned ultrasonically in IPA prior to being loaded in the vacuum system (background pressure in 1E-7 torr range). The argon sputtering pressure as well as the beam and acceleration voltages were kept constant during deposition. The RF power of the assist beam was kept at 200 Watt. The oxygen atomic beam was varied by varying the oxygen flow from 0 to 5 sccm. The RF power of the main gun was varied from 64 to 110 Watt. The resistivity of the samples were measured by linear 4pp. The optical properties of the samples were measured by transmission spectroscopy and ellipsometry. The resistivity and the absorption of the films appeared to be minimum at 5 sccm and 86 Watt.

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